

WHAT IS CLAIMED IS:

1. A lens made by molding a plastic material so that a reference axis corresponding to a turning point of an N-th order approximating curve of refractive index distribution $\Delta n(x)$ of the lens is displaced from a center of a passing area by a distance that is equal to or greater than 10% of a width of the passing area, wherein a luminous flux passes in the lens through the passing area.
2. The lens according to claim 1, wherein the reference axis is outside of the passing area.
3. The lens according to claim 1, wherein the reference axis substantially matches with a center line of an external shape of the lens, and the center line is outside of the passing area.
4. The lens according to claim 1, wherein the center of the passing area substantially matches with a center line of an external shape of the lens, and the reference axis is displaced from the center line by a distance that is equal to or greater than 10% of a width of the passing area.
5. The lens according to claim 1, wherein the center of the passing area substantially matches with a center line of an external shape of the lens, and

the reference axis is outside of the passing area.

6. The lens according to claim 1, wherein the N-th order approximating curve is a quadratic approximating curve.

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7. The lens according to claim 6, wherein a quadratic coefficient Δn of the refractive index distribution $\Delta n(x)$ based on least squared approximation satisfies a condition

$$0.1 \times 10^{-5} < |\Delta n| < 4.0 \times 10^{-5}$$

10 in a range of about ± 1 millimeter from the center of the passing area.

8. The lens according to claim 1, wherein the plastic material is polyolefin resin.

15 9. A lens comprising:

a plurality of passing areas through each of which a luminous flux passes in the lens simultaneously, wherein

the lens is made by molding a plastic material so that, for each of the passing areas, a reference axis corresponding to a turning point of an N-th

20 order approximating curve of refractive index distribution $\Delta n(x)$ of the lens is displaced from a center of the passing area by a distance that is equal to or greater than 10% of a width of the passing area, and

the passing areas are arranged in parallel with a center line of an external shape of the lens, being formed in one.

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10. The lens according to claim 9, wherein the reference axis is outside of each of the passing areas.

11. The lens according to claim 9, wherein the N-th order approximating 5 curve is a quadratic approximating curve.

12. The lens according to claim 11, wherein a quadratic coefficient Δn of the refractive index distribution $\Delta n(x)$ based on least squared approximation satisfies a condition

10 $0.1 \times 10^{-5} < |\Delta n| < 4.0 \times 10^{-5}$

in a range of about ± 1 millimeter from the center of the passing area.

13. The optical scanning lens according to claim 9, wherein the plastic material is polyolefin resin.

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14. An optical scanner comprising:

a light source that produces a luminous flux;
an optical deflector having a deflecting reflection surface that deflects the luminous flux from the light source at same angular velocity; and

20 a lens made by molding a plastic material, the lens condensing the luminous flux deflected as an optical spot on a plane to be scanned to perform optical scanning of the plane at a constant velocity, wherein

a reference axis corresponding to a turning point of an N-th order approximating curve of refractive index distribution $\Delta n(x)$ of the lens is 25 displaced from a center of a passing area by a distance that is equal to or

greater than 10% of a width of the passing area, wherein the luminous flux passes in the lens through the passing area.

15. An image forming apparatus comprising:

- 5 an optical scanner that includes
 - a light source that produces a luminous flux;
 - an optical deflector having a deflecting reflection surface that deflects the luminous flux from the light source at same angular velocity; and
 - a lens made by molding a plastic material, the lens condensing
- 10 the luminous flux deflected as an optical spot on a plane to be scanned to perform optical scanning of the plane at a constant velocity, wherein
 - a reference axis corresponding to a turning point of an N-th order approximating curve of refractive index distribution $\Delta n(x)$ of the lens is displaced from a center of a passing area by a distance that is equal to or
- 15 greater than 10% of a width of the passing area, wherein the luminous flux passes in the lens through the passing area.

16. A method of manufacturing a lens, comprising:

- forming the lens by molding a plastic material, the lens having a center line and two sides with respect to the center line; and
- cooling the two sides with a different cooling rate.

17. The method according to claim 16, wherein

- the cooling rate on the two sides is controlled so that a reference axis corresponding to a turning point of an N-th order approximating curve of

refractive index distribution $\Delta n(x)$ of the lens is displaced from a center of a passing area by a distance that is equal to or greater than 10% of a width of the passing area, wherein a luminous flux passes in the lens through the passing area.

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18. The method according to claim 17, wherein the cooling rate on the both sides is controlled so that the reference axis is outside of the passing area.

19. A lens for optical scanning manufactured by the method according to
10 claim 16.